Fiscal Year 2014 President's Budget Request for the DoD Science & Technology Program April 24, 2013

Mr. Bob Baker

Deputy Director, Plans & Programs,

Assistant Secretary of Defense (Research & Engineering)

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Theme

- **Continue aligning S&T investment to enable development of capabilities consistent with the January 2012 strategic guidance***

*** Sustaining U.S. Global Leadership: Priorities for the 21st Century Defense, Jan 2012**

- **"U.S. Armed Forces will be smaller and leaner, but they will be agile, flexible, ready, and technologically advanced." "Protect investments in key technology areas and new capabilities…"**

- Overview, DoD FY 2014 Budget Request, Apr 2013

- **S&T investment continues to be protected in this budget**

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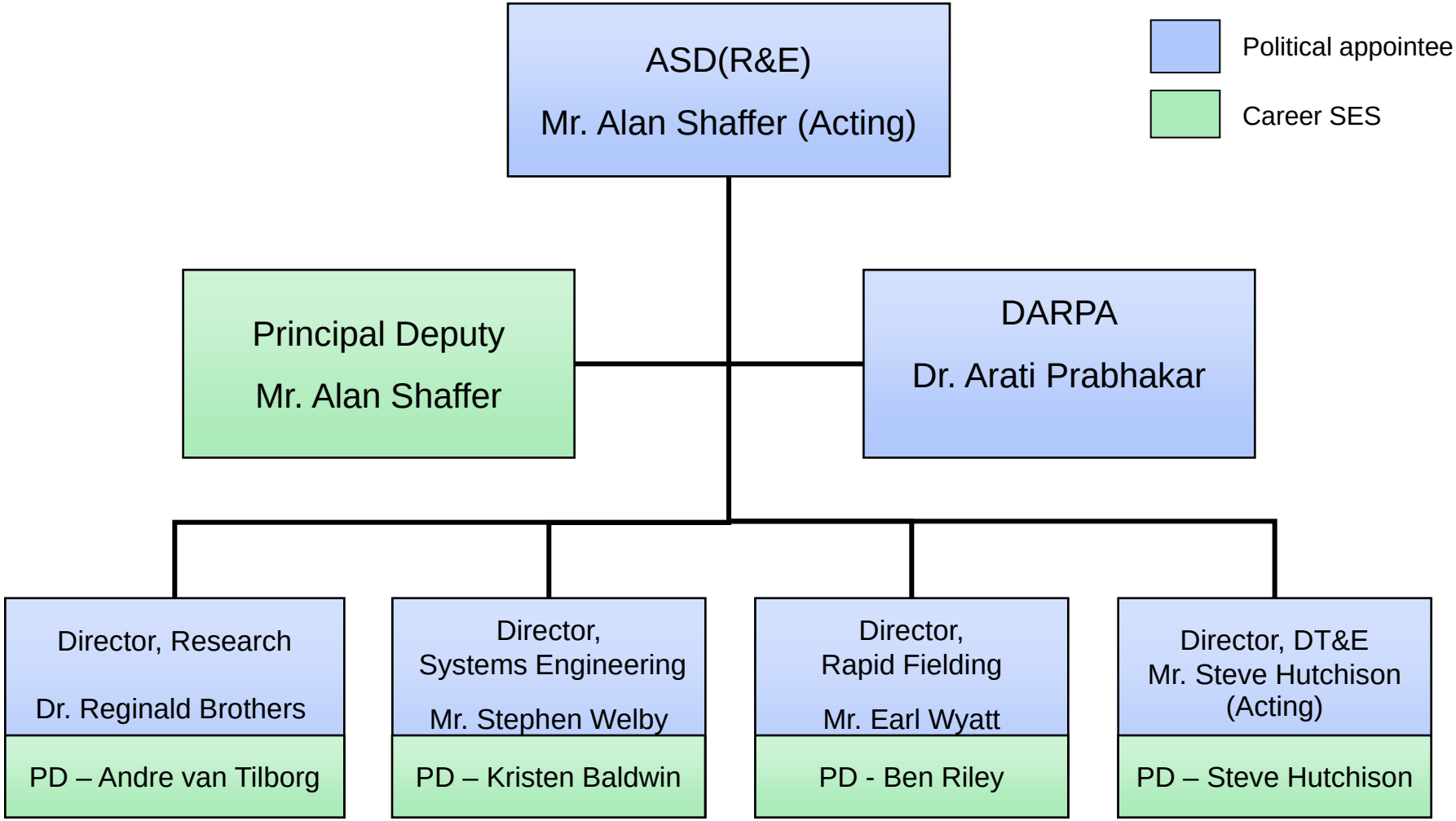
ASD(R&E) – Organization



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Outline

- ***Changes, Challenges & Priorities***
- ***FY2014 S&T President's Budget Request***
- ***Historical Context***
- ***Strategic Planning & Budget Changes***

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The Changing National Security Mission

- Proliferating WMD capability
- Adversaries will increasingly leverage commercial technology to challenge U.S. military capabilities
- New emerging challenges, e.g., energy security, climate change, cyber security
- Policing and peacekeeping in a coalition of many, in contrast to warfighting
- Balancing current vice future requirements
- Maintaining conventional and irregular warfare capability
- Soft power often more appropriate than hard power
- Failing/failed rather than aggressor states are a big challenge:
- Need to rebalance our focus from Iraq and Afghanistan toward the security and prosperity of the Asia-Pacific region

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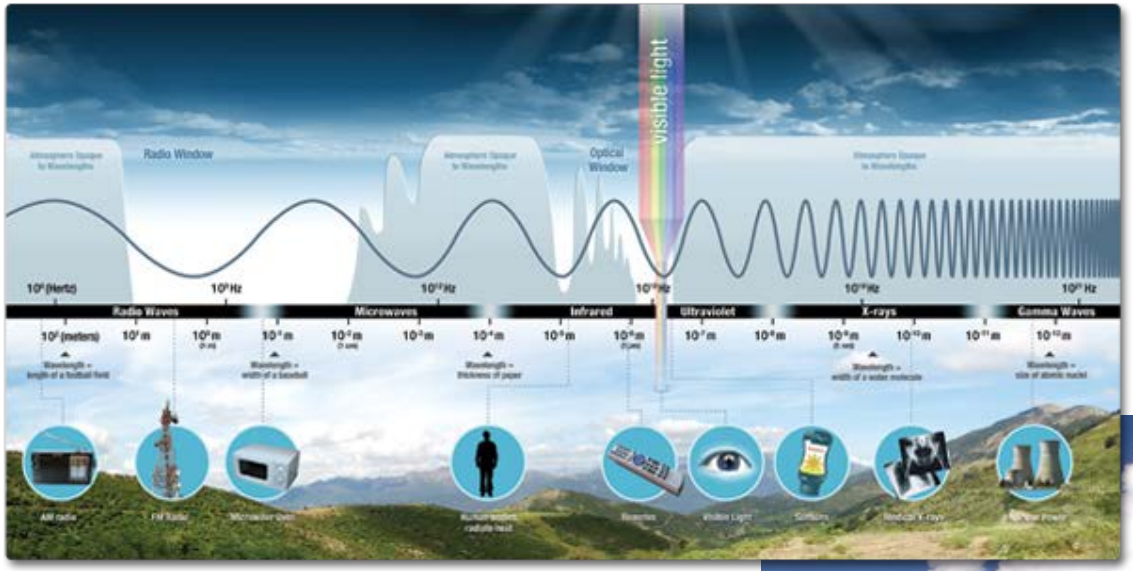
Rise of the Commons
Cyber, Electromagnetic Spectrum & Space



Military operations increasingly depend on being able to operate in places "no one owns" – *the Commons*

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FY 2013 Fiscal Challenges Remain

Even though DoD has an FY 13 Appropriations Act:

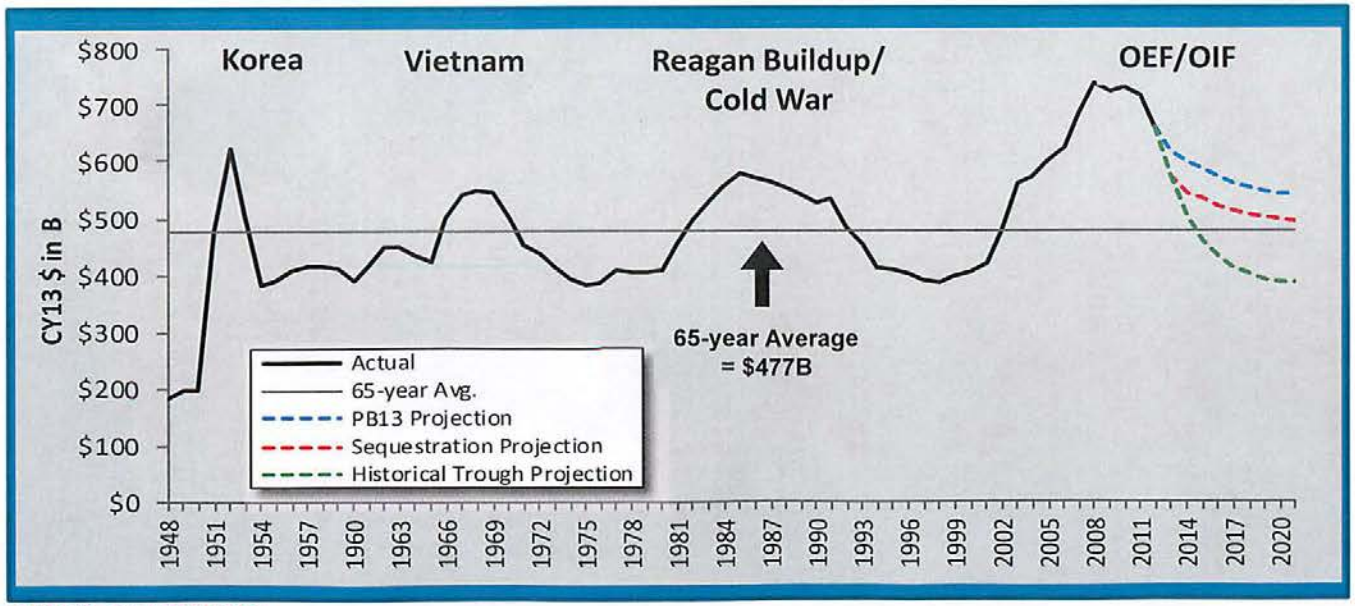
- **Sequestration remains**
  - **Total cut as much as $41 billion across DoD**
  - **By law cuts must be across-the-board at Program Element and Project level (~8%)**
- **Overseas Contingency Operations (OCO) shortfalls add to problems**
  - **Actual OCO spending significantly higher than expected**

Dis

The Reality….

"Our current security challenges are more formidable and complex than those we faced in downturns following Korea, Vietnam, and the Cold War. There is no foreseeable "peace dividend" on our horizon."

GEN DEMPSEY, CJCS
Testimony to SASC, 12 Feb 2013



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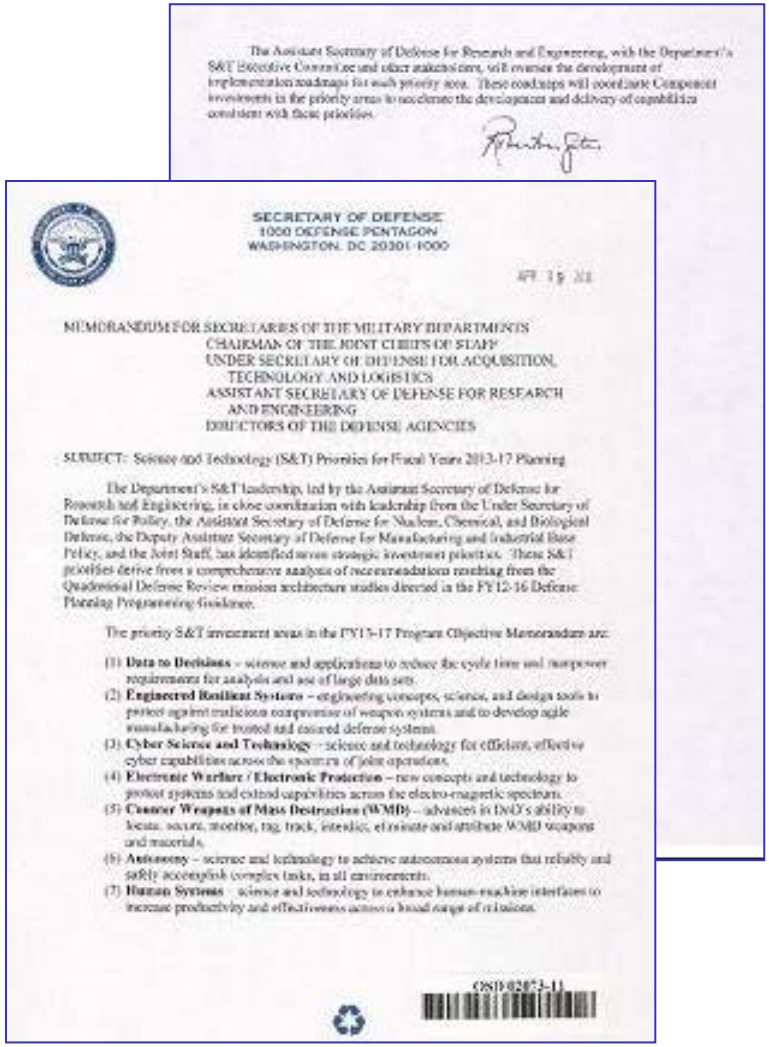
Secretary of Defense
S&T Priorities Memo – Apr 19, 2011



The Assistant Secretary of Defense for Research and Engineering, with the Department's S&T Executive Committee and other stakeholders, will oversee the development of implementation roadmaps for each priority area. These roadmaps will coordinate Component investments in the priority areas to accelerate the development and delivery of capabilities consistent with these priorities.

SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

APR 19 2011

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY AND LOGISTICS
ASSISTANT SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Science and Technology (S&T) Priorities for Fiscal Years 2013-17 Planning

The Department's S&T leadership, led by the Assistant Secretary of Defense for Research and Engineering, in close coordination with leadership from the Under Secretary of Defense for Policy, the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense, the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy, and the Joint Staff, has identified seven strategic investment priorities. These S&T priorities derive from a comprehensive analysis of recommendations resulting from the Quadrennial Defense Review mission architecture studies directed in the FY12-16 Defense Planning Programming Guidance.

The priority S&T investment areas in the FY13-17 Program Objective Memorandum are:

(1) **Data to Decisions** – science and applications to reduce the cycle time and manpower requirements for analysis and use of large data sets.
(2) **Engineered Resilient Systems** – engineering concepts, science, and design tools to protect against malicious compromise of weapon systems and to develop agile manufacturing for trusted and assured defense systems.
(3) **Cyber Science and Technology** – science and technology for efficient, effective cyber capabilities across the spectrum of joint operations.
(4) **Electronic Warfare / Electronic Protection** – new concepts and technology to protect systems and extend capabilities across the electro-magnetic spectrum.
(5) **Counter Weapons of Mass Destruction (WMD)** – advances in DoD's ability to locate, secure, monitor, tag, track, interdict, eliminate and attribute WMD weapons and materials.
(6) **Autonomy** – science and technology to achieve autonomous systems that reliably and safely accomplish complex tasks, in all environments.
(7) **Human Systems** – science and technology to enhance human-machine interfaces to increase productivity and effectiveness across a broad range of missions.

OSD 02873-11

S&T Priorities

- Data-to-Decisions
- Engineered Resilient Systems
- Cyber Science and Technology
- Electronic Warfare / Electronic Protection
- Counter Weapons of Mass Destruction
- Autonomy
- Human Systems

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White House FY2014 S&T Priorities

- **Emerging Military Capability**
  - **Cybersecurity**, to support NSS initiatives
  - **Electronic Warfare Technology**, to reduce vulnerabilities and improve systems
  - **Hypersonics**, to support national hypersonics requirements and capabilities
  - **Robotics and Autonomous Systems**, to support the warfighter
- **Strengthen Economy**
  - **Advanced Manufacturing**, to support innovation institutes
  - **Spectrum Management**, to develop spectrum sharing technologies
- **Build Other Dual Use Capability**
  - **Material Genome Initiative (MGI)**, to expand DOD participation in the MGI
  - **Clean Energy**, to develop alternative energy sources and fuel

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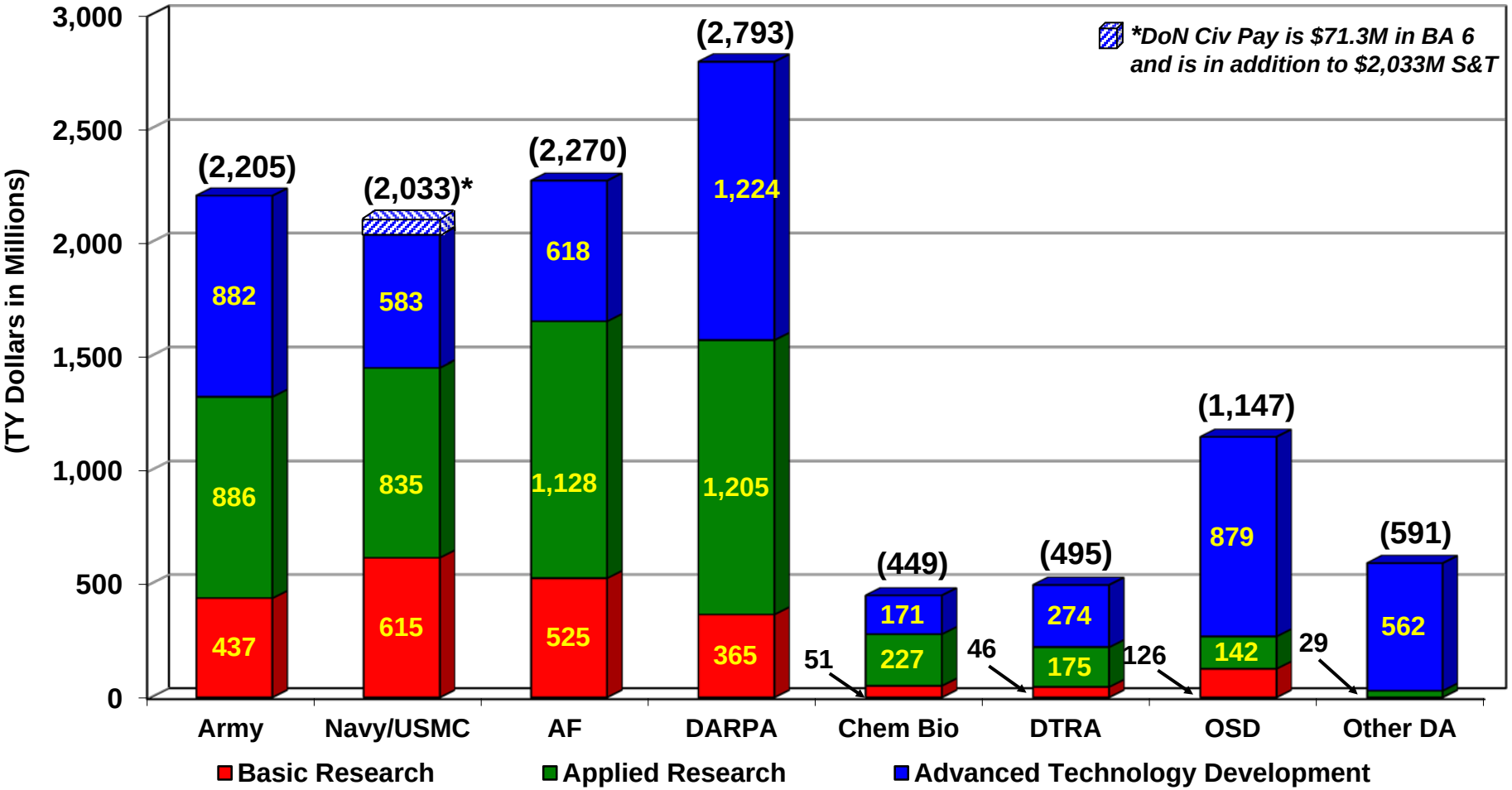
FY14 DoD S&T Budget Request

Total FY14 S&T request = $11.98B

Total FY13 S&T Request = $11.86B

Army = 2,210 Navy = 1,980 AF = 2,222 DARPA = 2,746 ChemBio = 508 DTRA = 492 OSD = 1,071 Other DA = 632



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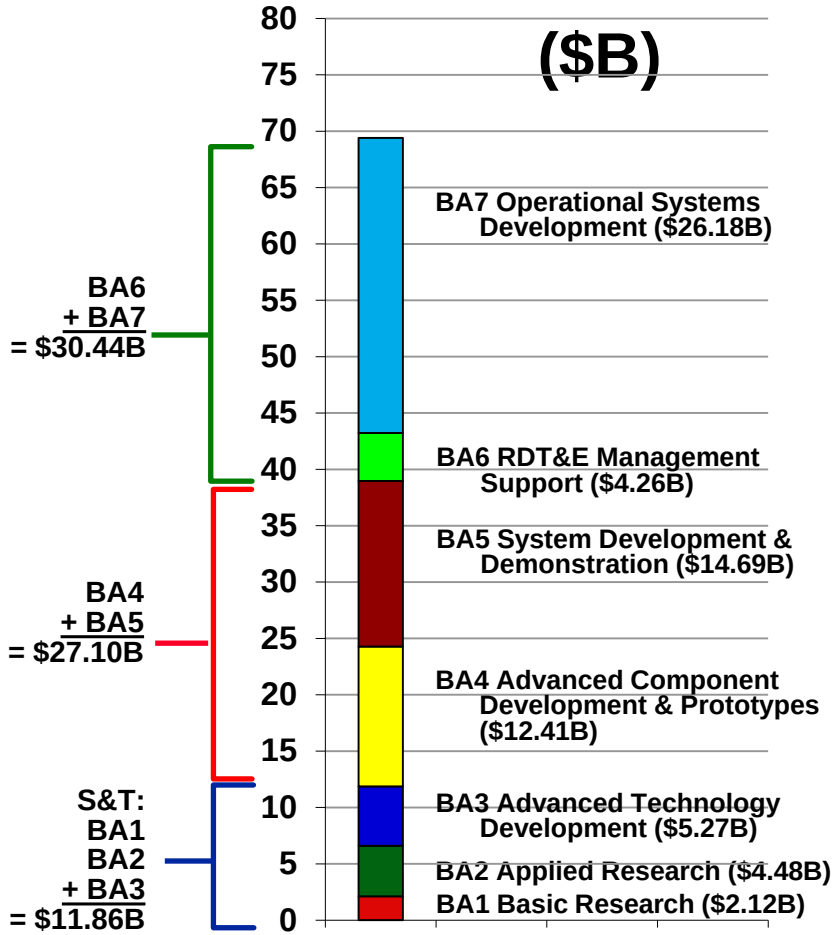
FY13 and FY14 RDT&E Budget Request Comparison

- in Then Year Dollars -

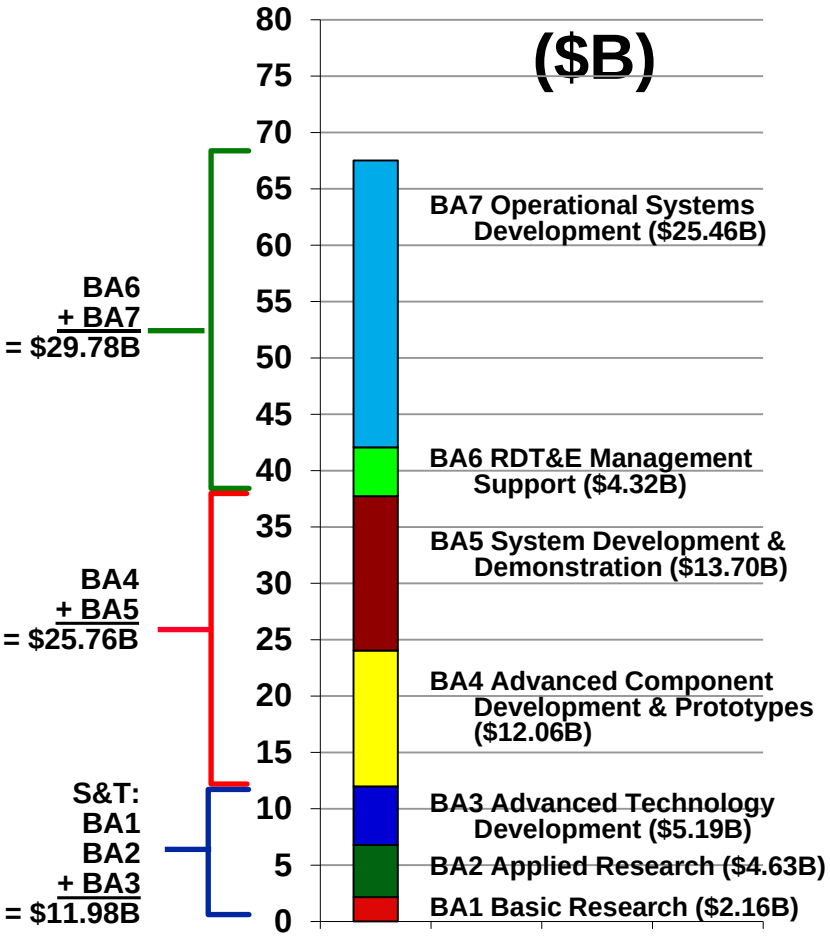
FY13 RDT&E request = $69.41B (Budget Activities 1-7)



Technology Base (BA1 + BA2) = $6.59B

PBR13 S&T is 17.0% of RDT&E

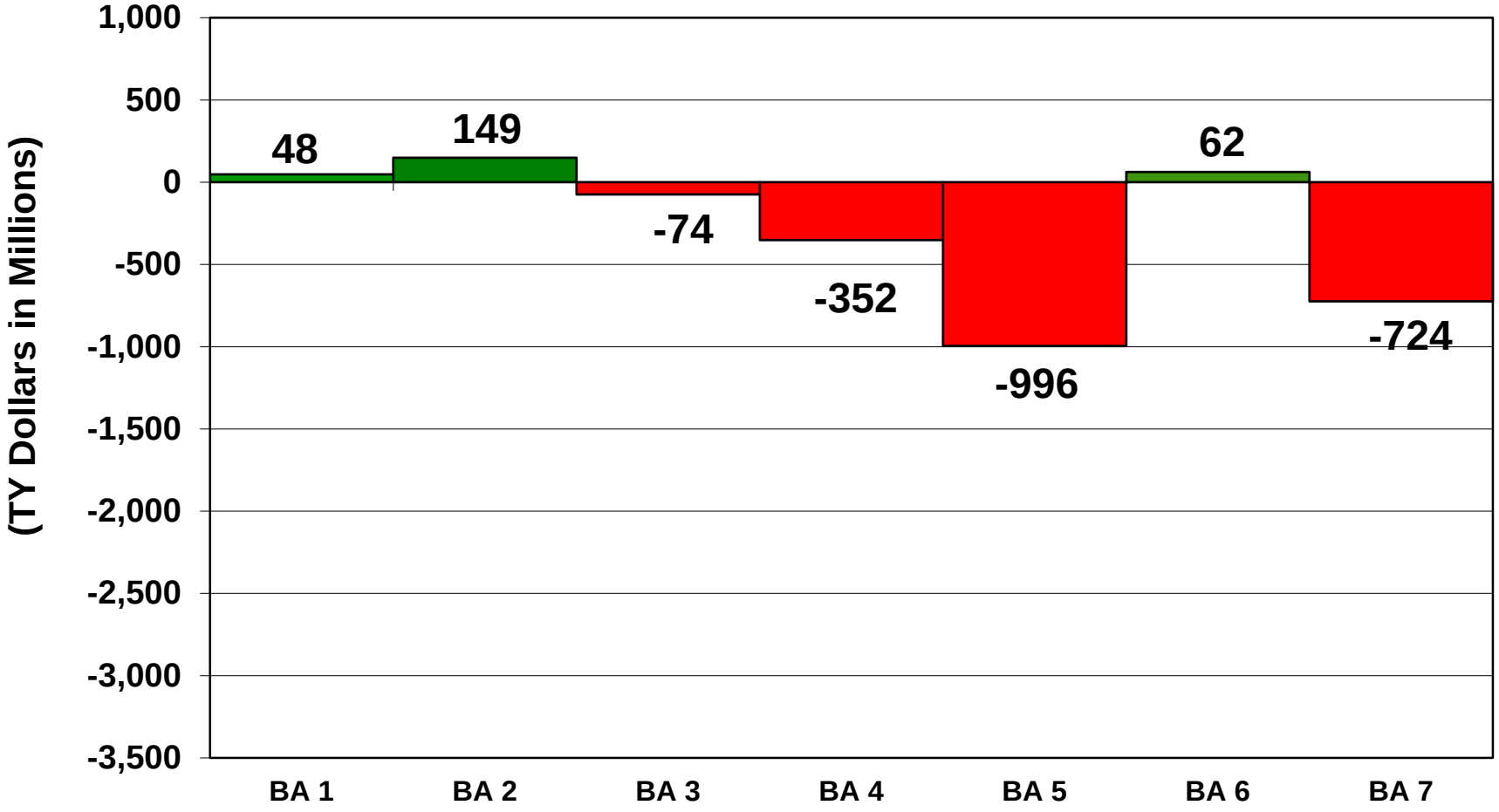
FY14 RDT&E request = $67.52B (Budget Activities 1-7)



Technology Base (BA1 + BA2) = $6.79B

PBR14 S&T is 17.7% of RDT&E

RDT&E Budget Request Overview
- FY13 and FY14 Comparison -



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FY14 DoD R&E Budget Request Comparison

	PBR 2013	PBR 2014 (FY13 CY $)	% Real Change from PBR 2013 (FY13 CY $)
Basic Research (BA 1)	2,117	2,164 (2,128)	0.53%
Applied Research (BA 2)	4,478	4,627 (4,549)	1.59%
Advanced Technology Development (BA 3)	5,266	5,192 (5,105)	-3.06%
DoD S&T	**11,861**	**11,984 (11,782)**	**-0.67%**
Advanced Component Development and Prototypes (BA 4)	12,409	12,057 (11,854)	-4.47%
DoD R&E (BAs 1 – 4)	**24,270**	**24,040 (23,636)**	**-2.61%**
DoD Topline	525,449	526,637 (518,854)	-1.26%

** Comptroller Information Systems data as of 1 March 2013

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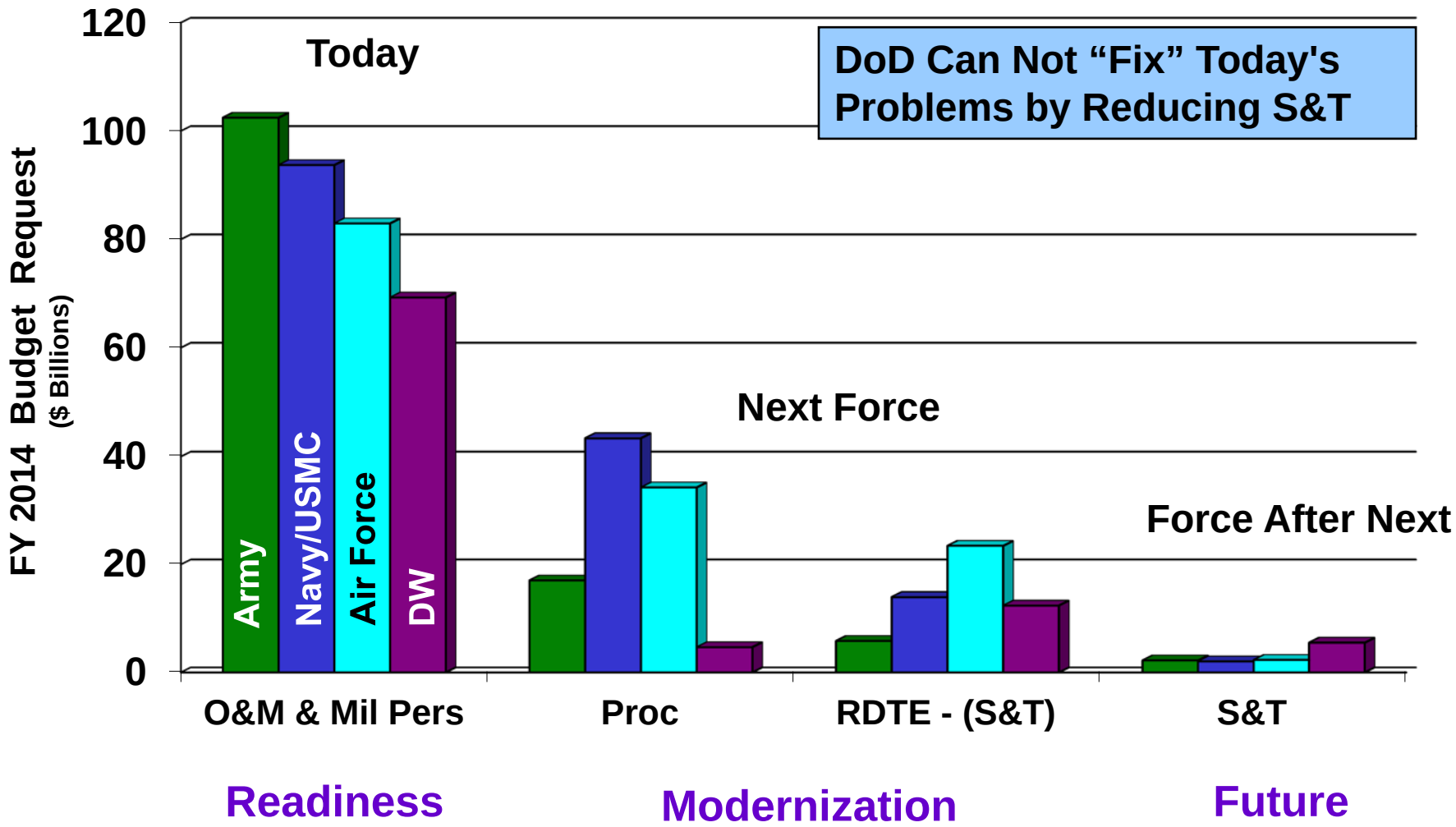
FY14 Technology Investment Compared to Other DoD Categories



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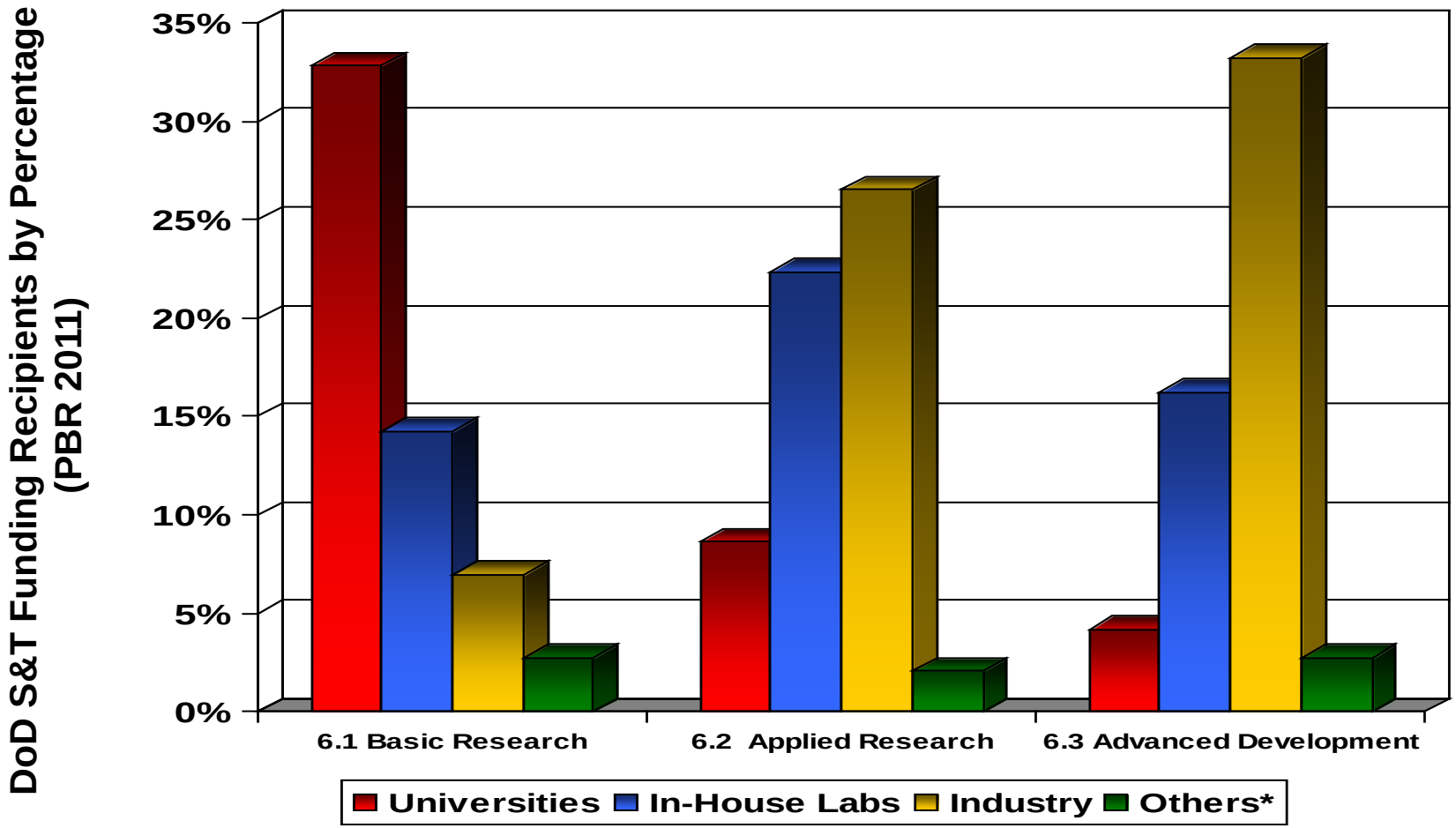
Recipients of DoD S&T Funds



***Includes non-profit institutions, State & local govt., & foreign institutions**

Source: National Science Foundation Report (PBR 2011)

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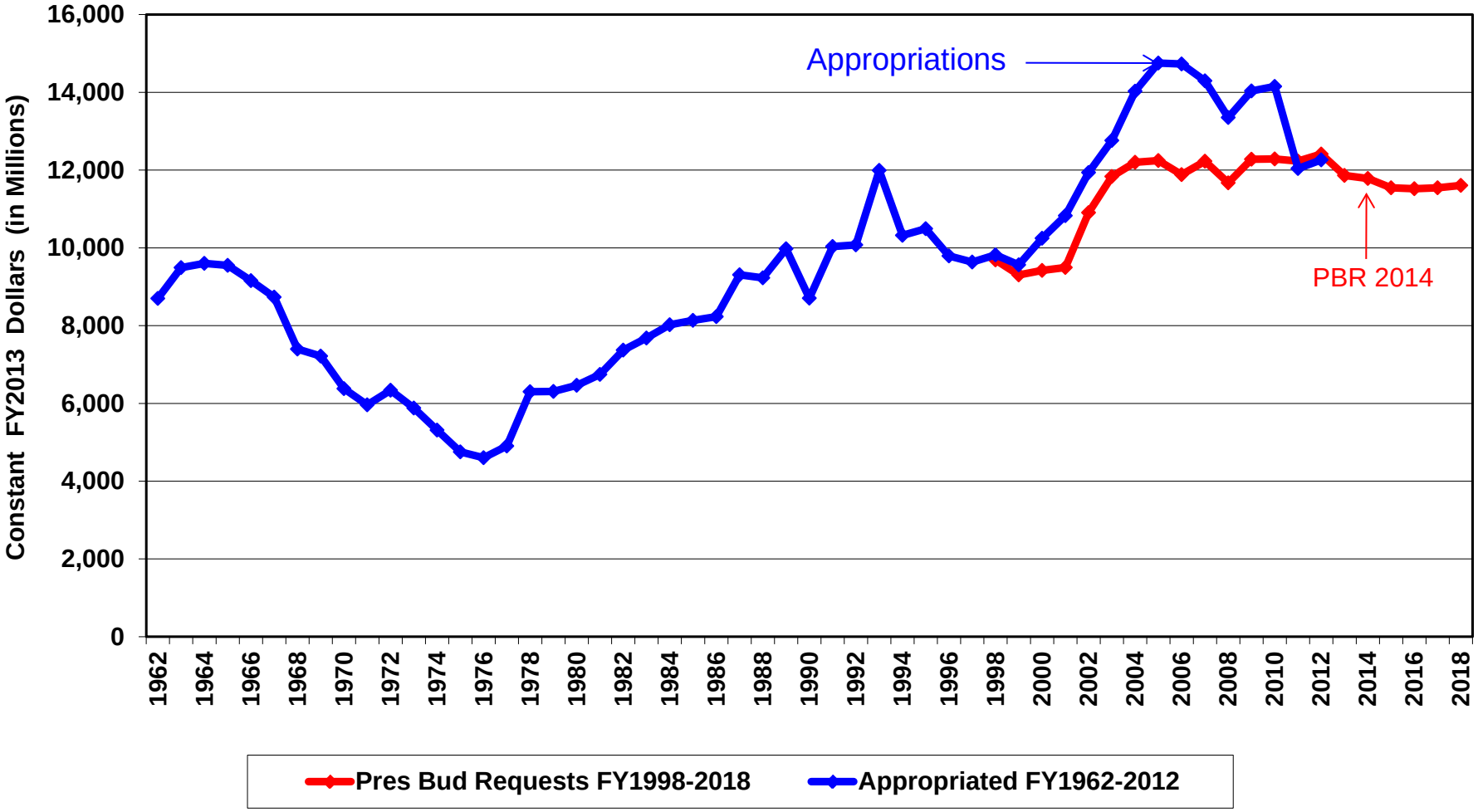
DoD S&T FUNDING: FY1962-2018

(FY1962-2012 Appropriated, FY1998-2018 President's Budget Request)



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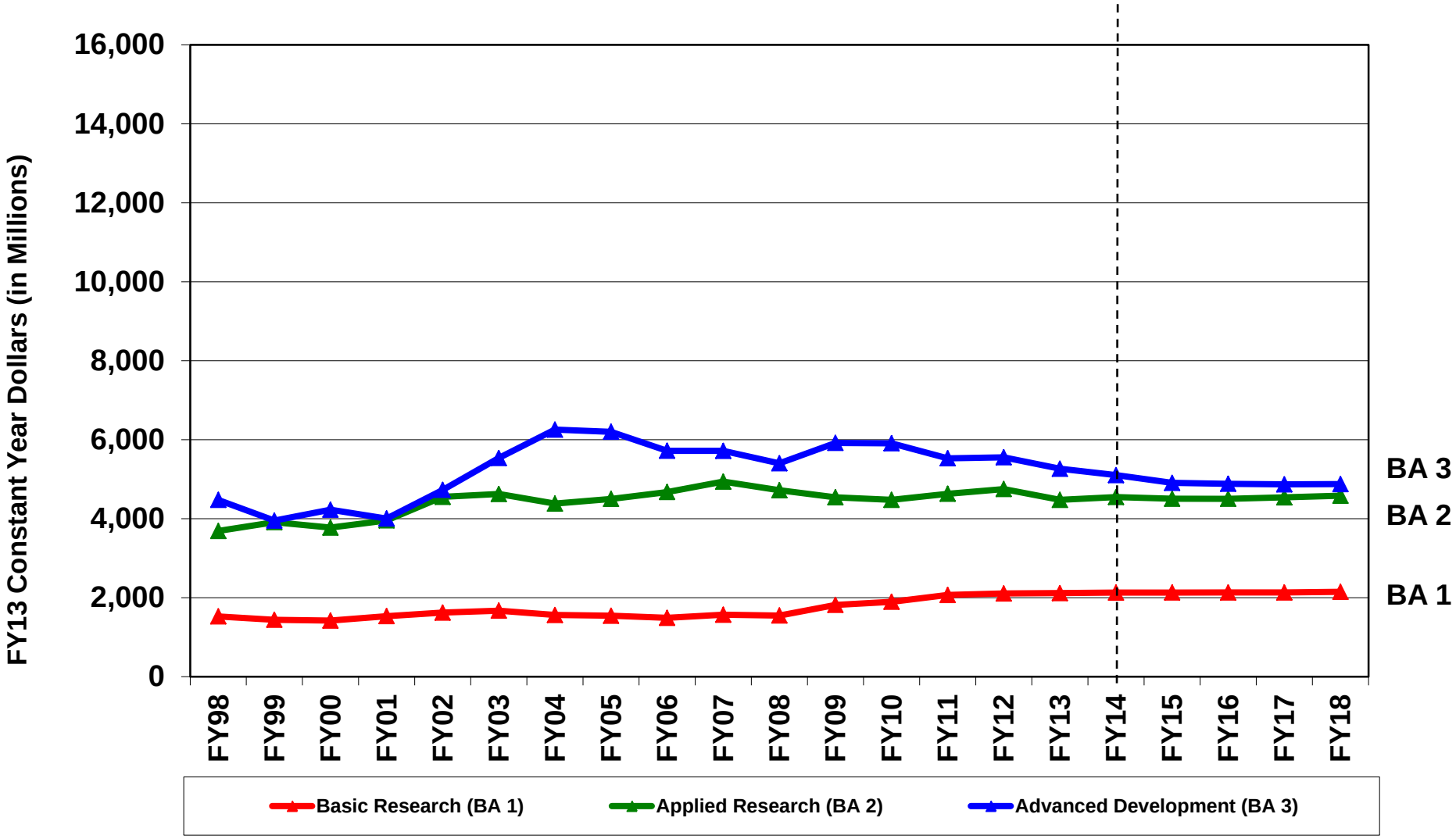
DoD S&T Funding By Budget Activity
- President's Budget Requests -



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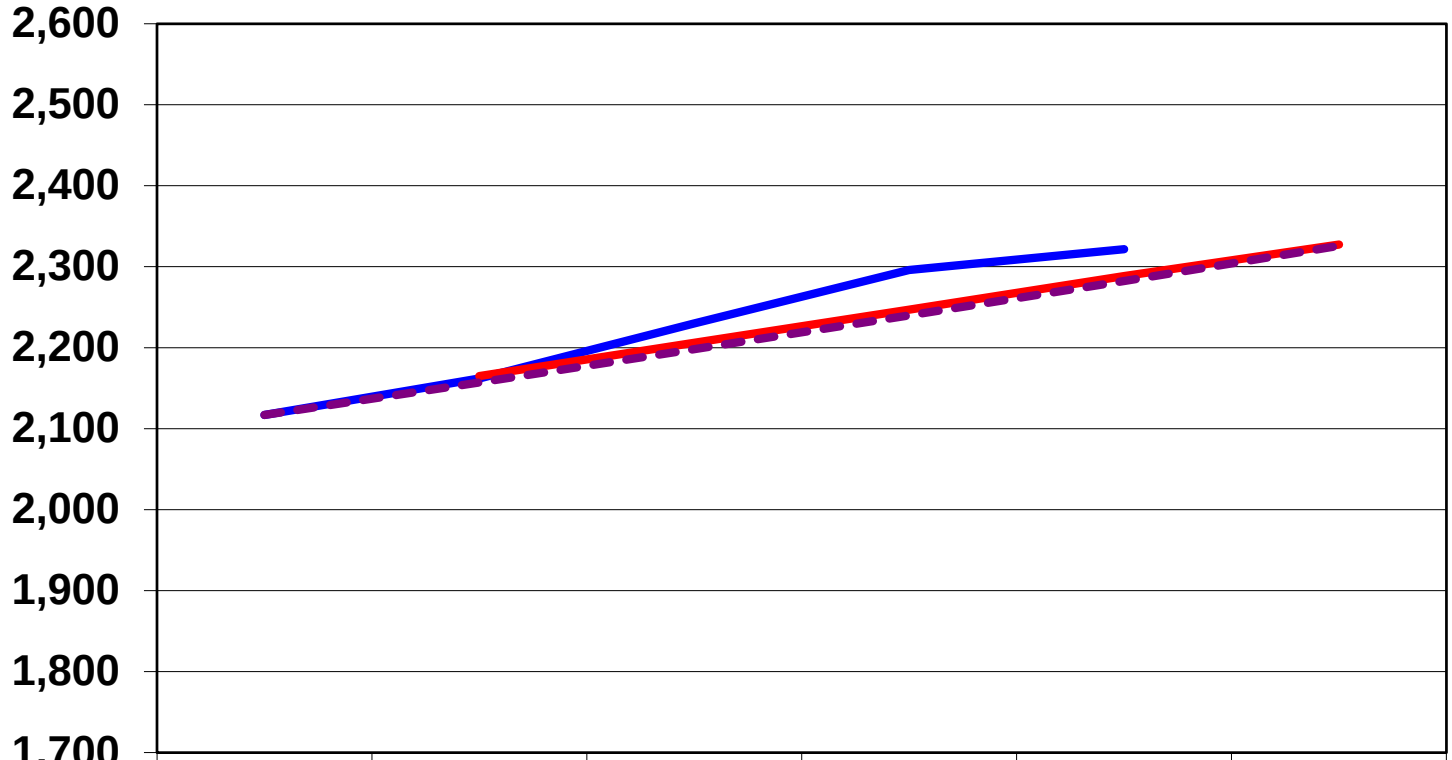
DoD Basic Research

(TY Dollars in Millions)



	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
PBR-13	2,117	2,162	2,230	2,296	2,322	
PBR-14		2,165	2,206	2,247	2,288	2,327
0% RPG	2,117	2,157	2,198	2,240	2,282	2,326
Δ - PBR14 versus PBR13		3	-24	-49	-33	

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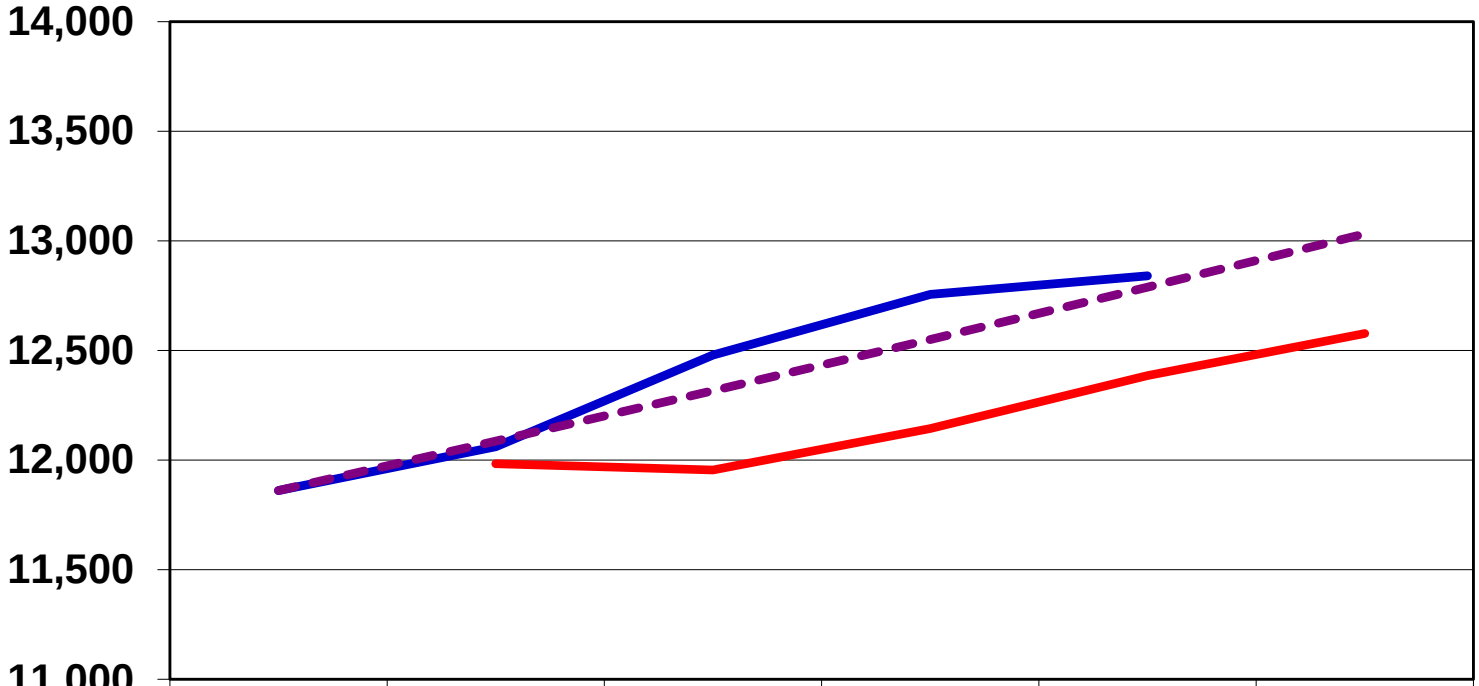
DoD Science & Technology

(TY Dollars in Millions)



	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
PBR-13	11,861	12,061	12,479	12,756	12,841	
PBR-14		11,984	11,955	12,144	12,386	12,578
0% RPG	11,861	12,086	12,316	12,550	12,789	13,032
Δ - PBR14 versus PBR13		-78	-525	-612	-455	

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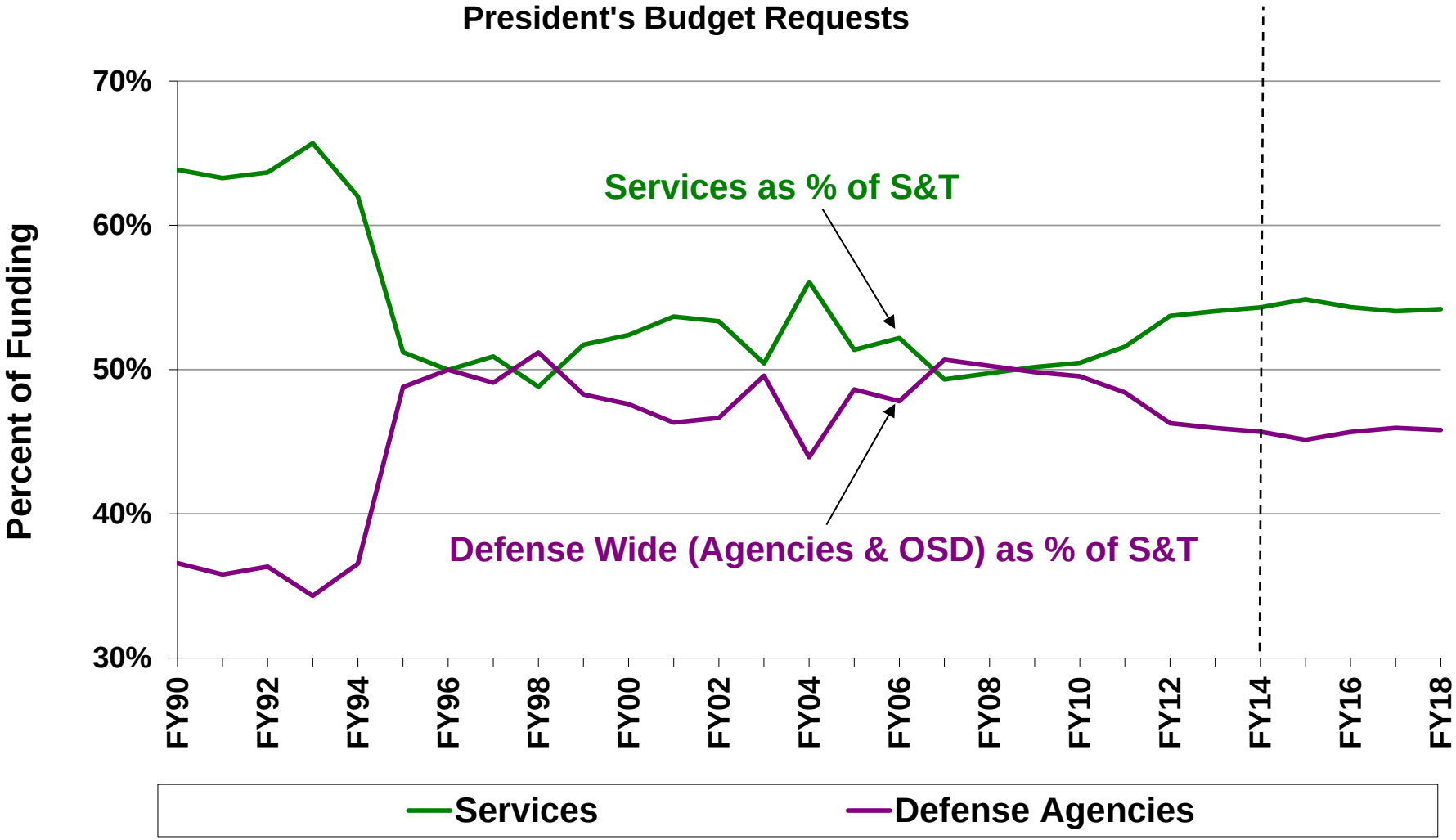
S&T Breakout

- Services and Defense Agencies as % of Total S&T -



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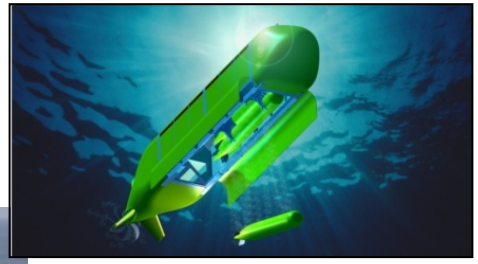
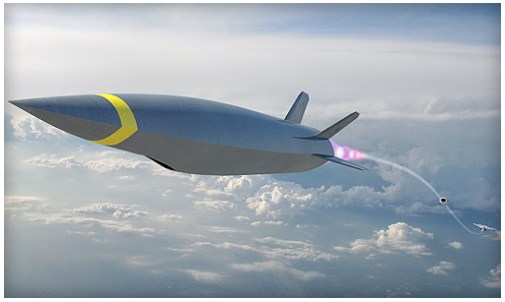
DoD Must Develop New Ways to Project Power

- Improved Intelligence, Surveillance, & Reconnaissance
- Electronic Attack / Electronic Protection
- Surface to Surface Ship Missiles
- Ballistic and Cruise Missile Defense





- Improved Precision Strike
- Cyber and Space Capabilities
- Undersea Warfare
- Advanced Air Defenses

Technologically advanced capabilities needed for the future

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FY 2014 Investments to Meet S&T Priorities

- **Project Power Despite Anti-access/Area-denial Challenges (~$2B)**
  - ***Army $20M*, *Navy $580*, *Air Force $620M*, *Defense Agencies $650M***
  - **Realigned ~$5 billion across the FYDP for A2/AD priorities (not all S&T)**
    - **Enhanced electronic warfare to include jamming pods and EW test range**
    - **Advanced Infrared Search and Track (IRST)**
- **Counter Weapons of Mass Destruction (~$1B)**
  - ***OASD(NCB) components: CBD, DTRA***
- **Advanced Manufacturing (~$83M – up 41%)**
  - ***Air Force $36M*, *Defense Agencies $47M***

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FY 2014 Investments to Meet S&T Priorities (contd.)

- **Operate Effectively in Cyberspace & Space (~$1B)**
  - ***Cyber:*** ***Army $30M, Navy $50M, Air Force $60M, Defense Agencies $340M***
  - ***Space:*** ***Army $6M, Navy $20, Air Force $330M, Defense Agencies $200M***
- **Electronic Warfare (~$600M)**
  - ***Army $40M, Navy $160M, Air Force $89M, Defense Agencies $300M***
- **High-speed Kinetic Strike (~$100M)**
  - ***Air Force $76M***
- **Developmental Prototyping (+$13.8M) – *New vector***
  - ***ASD(R&E)***

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Summary
--*Where We Are Today*--

- **FY 2014 S&T President Budget Request (PBR) is $11.98 billion, an increase of 1% (then year $) as compared to FY 2013 PBR**
  - **Department protected S&T relative to rest of RDT&E (-2.7%) and Overall DoD Topline (+.2%)**
- **Basic Research and Applied Research increased a total of $196 million**
- **Defense Advanced Research Projects Agency is funded at $2.9 billion RDT&E to develop technologies for revolutionary, high-payoff, military capabilities**
- **S&T funding in each Military Department is maintained at approximately $2.2 billion**
- **Funds aligned to support strategic guidance and S&T priorities**

All FY 2013 funding does not take into account sequestration reduction

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